Accepting EVOLUTION or Discarding SCIENCE

by Donald K. Sharpes and Mary M. Peramas

Challenging basic principles of constitutional law, advocates of intelligent design are undermining educators' ability to teach evolution in their science classrooms.

Clashes of cultural values are integral to the continuing experiment in democracy, and conflicts between religion and science are a perennial subtext to that unique American experience. However, because U.S. Supreme Court rulings now prohibit creationist accounts of the origin of life in schools, arguments favoring divine intervention, known as intelligent design, have emerged as an alternative voice against the teaching of evolution in science classes. Intelligent design suggests that some organisms, such as human eyes, are far too complex to have developed chaotically

or randomly and that, therefore, evolution alone cannot explain biological phenomena.

The concept of intelligent design is ancient and appears in both pagan and Christian literature. The idea appears in *On the Nature of the Gods* (1950, 227), written by Cicero about 50 BCE:

> *The first point then, said Lucilius, does not seem to require any argument to prove it. For, when we look up at the heavens and contemplate the celestial bodies, what can be so plain and obvious as the existence of a supreme divine intelligence by whom all these things are ruled?*

Likewise, Boethius, the Christian author of *The Consolation of Philosophy* (1969, 50) and Roman Consul under the Emperor Theodoric, noted in about 520 CE:

> *I could never believe that events of such regularity are due to the haphazard of chance. In fact, I know that God the Creator watches over His creation. The day will never come that sees me abandon the truth of this belief.*

Though educators understand the rationale of intelligent design and respect its antiquity, they also know that there is no reasonable doubt about evolution any more than there is about the existence of prostate or breast cancer. If the evidence for evolution, with all its compelling data, were to be laid out alongside intelligent design, with only argument and logic in its favor, the contrast would be stark. To frame the discussion about the arguments for and against intelligent design and why its advocates are so opposed to evolution, this article reviews some recent episodes in this lingering controversy.

School District Cases

When the Dover, Pennsylvania, school board voted to prescribe that science teachers had to teach intelligent design as an alternative to evolution, board members who opposed this measure immediately resigned. Further, the matter went into litigation, and federal Judge John E. Jones ruled that the Dover school board acted unconstitutionally in presenting intelligent design as an alternative to the study of evolution. During the course of the hearings, the embarrassed community of Dover, in November 2005, voted out of office all those who had supported this mandate.

In his ruling, Judge Jones concluded that intelligent design was, as its opponents claimed, at its core a religious alternative to science. His opinion reprehended the members of the former school board for touting their religious views in public while disguising their real purposes in school policy decisions. "The students, parents, and teachers of the Dover Area School District," wrote Judge Jones (quoted in Hart 2005, 16), "deserved better than to be dragged into this legal maelstrom, with its resulting utter waste of monetary and personal resources."

A preferred outcome for religiously minded, but legally challenged politicians and community leaders would have been to allow intelligent design topics into comparative religion courses or after-school club discussions. The court's decision effectively derailed attempts by fundamentalist school boards, backed tacitly by religious conservatives, to alter established adjudicated principles of constitutional law about religion in schools.

Nevertheless, the public generally supports creationism. Popular demand for teaching about religion in schools fuels the controversy through political endorsements. At the beginning of the third millennium, nearly 100 such significant controversies were brewing in 31 states.

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Twenty states have advocated their right to teach intelligent design in science classes, including Michigan and New York. Five states—Florida, Kentucky, Mississippi, Oklahoma, and Alaska—currently do not teach evolution in the science classroom at all.

In a related development, the Kansas Board of Education held hearings in the spring of 2005 about what children in Kansas schools should be taught about evolution. The brouhaha in Kansas highlighted a disturbing misconception about American society: that somehow law itself is rooted in decisions held by the majority in a democracy, and not decisions already codified by the judiciary.

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Similarly, a federal judge in Georgia (Hart 2005) ordered antievolution stickers removed from textbooks first distributed to students in Cobb County in 2002. The court found that the message—"evolution is a theory not a fact"—was an endorsement of religion.

Florida legislator Dennis Baxley, like legislators in about a dozen states, sponsored a bill that would allow students who didn't think their viewpoints on controversial topics were respected—and given equal time—in a college classroom the right to sue their professors. His aim was to challenge those professors who taught that evolution was a fact and not a theory.

This simplistic argument that evolution is *just a theory*, as if that offhanded comment made its findings mere hunches, is meant to deride the discoveries and promote the inerrancy of scripture. A theory in science may appear to be speculative, but actually is not just a guess, but is a model that best describes the preponderance of evidence. What intelligent design advocates fail to recognize, however, is that the idea of intelligence and the existence of one or more deities are themselves just theories.

Despite unambiguous U.S. Supreme Court rulings, many school districts repeatedly and insidiously attempt to undermine students' full entry into the modern world by promoting a biblical interpretation of the universe, which in turn frustrates science teachers. Moreover, school boards confuse the concept of evolution, even the facts of human development, with natural selection, or a theory of the origin of organic life and humans. Such combined unambiguous religious persuasions, flawed political activities, weak judicial knowledge, and fiscal irresponsibility in challenging established legal principles damages the image of education as a source of learning and free inquiry and makes schools appear as mere extensions of churches.

Creationist Influences

Christian conservatives thus have been legally thwarted when attempting to inject intelligent design into science curricula. But creationists still are busy inserting a biblical agenda into the public sector. The Grand Canyon bookstore, operated by the National Park Service, is not a protagonist for secular humanism, but just a government agency responsible for maintaining the national parks. Yet, in 2004, the store carried *Grand Canyon: A Different View* (Vail 2003), a book that describes the earth as having been created in six days about 6,000 years ago. This biblical message, refuted by all scientists, is nevertheless promulgated at all six of the park's government bookstores. According to the nonprofit association that operates the bookstores, the book is being sold—in the inspirational, not the science books section—because it offers a "divergent viewpoint." And the book sells well, which is another inducement for displaying it.

Such misapplied political correctness is dangerous not only to American culture, but also to education. No one can blame parents for wanting to protect their children from negative influences of popular culture and themes that are offensive to their religious beliefs. Even though the religious right consistently has lost court battles, it effectively has bankrupted many textbook publishers and maligned the professionalism of science and science teachers. Projecting only a biblical version of biological life is an affront to practicing scientists and an indignity to all informed citizens.

A geological argument against intelligent design can be found in subterranean caves, such as Kartchner's Caverns in southeastern Arizona, which was discovered only in 1974 and not opened as a state park until 1988 (Negri

1998). The limestone deposits in this cave were formed about 330 million years ago, when sand was deposited from ancient seas. When the movement of tectonic plates and volcanic activity caused the earth to buckle and mountains to form about 200 million years ago, these deposits tilted. As water trickled through crevices in the earth, some deposits eroded and escaped through fissures in the rocks. About one million years ago, as a large cavity displaced crusted matter, water began to seep from the ceiling that is now Kartchner Caverns. The slowly dripping water seeping through innumerable cracks leaves deposits of carbonic acid forming calcified stalactites hanging from the ceiling and stalagmites forming on the floor. For a stalactite to form one inch takes about 750 years.

Theories **and Beliefs**

Great indeed, we confess, is the mystery of our religion.
(*First Timothy* 3:16)

Creationism and intelligent design are not theories at all, as we understand statements for testing truths, but political and religious promotions. Yet almost half of all Americans believe that the earth and humans were created nearly simultaneously.

A Gallup poll (Newport 2004) showed that 45 percent of Americans surveyed believed in creationism and only 35 percent in evolution. Moreover, 68 percent believed in the devil, or twice as many as believed in evolution. A similar poll conducted by CBS Broadcasting (2004) reported that nearly two-thirds of all Americans surveyed favored teaching creationism together with evolution in schools.

The Pew Forum on Religion and Public Life (2005) found similar results in its poll. Two-thirds of Americans surveyed said that creationism should be taught alongside evolution in public schools. The survey found that 42 percent of respondents believed that "living things have existed in their present form since the beginning of time." By contrast, only 42 percent thought humans had evolved over time, and only 26 percent of that group thought humans evolved through natural selection. The other 18 percent thought humans evolved, but were "guided by a supreme being." On the other hand, only 13 percent of American adults knew what a molecule is. This is the lamentable level and condition of U.S. science understanding.

Even though evolution is solidly established, creationists are unconvinced of the scientific evidence. The absence of collected evidence, however, is not in itself faulty, because other scientific theories, such as black holes, have negligible evidence. The difference is that evolution has more than a century of compelling evidence from multiple disciplinary sources to inform its conclusions.

Teaching **Scientific Ideas**

What creationism and intelligent design expose is the failure of schools to properly instruct each generation in the most significant ideas that have shaped civilization, including scientific ideas. Accepting evolution neither proves nor disproves the existence of God. The debate between creationists and devoted scientists is less about science and more how we want to live our lives based on our beliefs.

More disturbing is that one-third of all science teachers in America, according to a study conducted by The National Science Teachers Association (Scott 2005), feel pressured to include creationism in their classrooms. The National Academy of Sciences (Donovan and Bransford 2005), which rarely makes political statements, bemoaned that one of the major elements of science instruction—the study of evolutionary processes—is being systematically eroded.

Suggestions for Teaching **Controversial Topics**

- Teach students how to evaluate truth claims (Malikow 2006).
- Focus on the topic, not just one viewpoint.
- Search for the common ground.
- Define issues and points of disagreement.
- Develop criteria or standards of reference.
- Have students explain at least two sides of the issue.

The Pursuit **of Science**

Wouldn't it be outrageous if all scientific investigators simply gave up and declared that the pursuit of science has all been a gigantic hoax? That the earth really did come into existence in six days and that the evidence that has accumulated is just trash? That scriptural stories are the key to solving all problems?

Think of intelligent design, and while holding that thought, consider the Venus flytrap—a vegetative aberration if ever there was one—a plant that is a carnivore. It doesn't have any muscles, like an organism, so how is it able to squeeze its cup shut so quickly to trap its victim? Is the Venus flytrap one of those special divine design details created to puzzle human intellects, or a unique development of natural selection, enigmatic to humans, that demonstrates the wide diversity of nature and its own developmental peculiarities? Whereas congenial flowers, through their fragrances and other wily enticements, generally invite passing insects into their quarters so their sticky feet can pick up pollen and redistribute it, the Venus flytrap, against most civilized rules of behavior and design, eats its guests.

Understanding the **Scale of Life on Earth**

There is no fundamental difference between man and the higher mammals in their mental faculties.
(Darwin 1871)

The awesome perspective that natural selection or evolution brings to human consciousness is the longevity of time. When we look at the beauty and seeming fragility of the fossilized bones of a trilobite, a marine creature that lived 600 million years ago during the Cambrian period, we can begin to fathom time as a major factor in the evolution of biological life forms. Trilobites flourished long before the dinosaurs and existed on earth for more than 350 million years (Mayr 2001). The scale of that time frame is awesome. By comparison, hominoid fossils are only between 6 and 7 million years old. It is that chronological immensity that generates mental limitations to understanding the scale of life on earth and yet which defines its slow progression.

A Quick **Primer on Evolution**

What is evolution? An idea that all organic development has occurred over long periods of time.

Is evolution just a theory? Evolution is theoretical, like gravity or the atomic structure, an assumption supported by a series of validated observations from the natural world.

How does evolution occur? Most likely through natural selection whereby many species die out and others survive.

What is the evidence against evolution? All evidence supports evolution, and no other scientific theory is a viable alternative.

(Mayr 2001)

The tools of molecular biology and comparative genomics, which can distinguish specific changes in the DNA of 17,000 species of butterflies and why some insects have only six legs instead of a dozen, have simply not filtered into popular understanding. The Human Genome Project confirmed that, despite the seeming complexity of human biology, humans have about 25,000 genes, about the same number as many fish and mammals, and only about twice as many as fruit flies. George Church (2006), one of the earliest proponents of the Human Genome Project, predicted that within a decade individuals will have their personal genome or DNA sequence encoded on a disc for doctors to reference for diseases and sicknesses.

Former Harvard Professor of Anthropology William W. Howells (1989) demonstrated through the measurement of cranial cavities that all humans are of one homogeneous species. Rebecca Cann, Mark Stoneking, and Allan Wilson (1987) showed through global analyses of mitochondrial DNA, which only passes through females, that all humans came from the ovaries of one woman in Africa about 150,000 years ago.

Closing **Thoughts**

Neither science nor philosophy admits orthodoxy. Only faith and religion presume to know absolute truth. Science is skeptical of all opinions unless tested with rigorous methods and validated repeatedly, but rightly disdains transcendental theories, certainly in medicine, without methods for validating them. The Federal Drug Administration, for example, does not allow pharmaceuticals to be released to the general public unless relevant organic tests have been performed for primary and secondary effects. The general public would resist efforts to curtail this standard process that deters oversight on public health.

In these controversies, learning from human history is helpful. The Stone Age, for example, did not conclude because humans ran out of stone. It ended because people discovered other means of enhancing their lives and based their civilization on new authentications. Neither did the end of the Bronze Age lead to the cessation of experiments in metallurgy. Today's Information Age is not misnamed; scientific information is available, but few acquire it and use it productively in their lives. In the final analysis, if we don't accept evolution, we may as well abandon or discard all we know about the life sciences.

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